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# United States Patent [19]

[11] Patent Number: **5,297,548**

**Pologe**

[45] Date of Patent: **Mar. 29, 1994**

[54] **ARTERIAL BLOOD MONITORING PROBE**

5,137,023 8/1992 Mendelson et al. .... 128/633

[75] Inventor: **Jonas A. Pologe, Boulder, Colo.**

**FOREIGN PATENT DOCUMENTS**

[73] Assignee: **Ohmeda Inc., Murray Hill, N.J.**

0303502 2/1989 European Pat. Off. .

[21] Appl. No.: **45,962**

9004353 5/1990 PCT Int'l Appl. .

[22] Filed: **Apr. 12, 1993**

911136 8/1991 PCT Int'l Appl. .

*Primary Examiner*—Angela D. Sykes

*Attorney, Agent, or Firm*—Roger M. Rathbun; Larry R. Cassett; James M. Graziano

**Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 832,551, Feb. 7, 1992.

[57] **ABSTRACT**

[51] Int. Cl.<sup>5</sup> ..... **A61B 5/00**

This arterial blood monitoring system takes advantage of the basic statistical property that arterial blood contains a plurality of dominant absorbers, whose measured light absorption spectra appear as a constant over a short interval of time. By measuring the transmitted light as it varies with arterial pulsation at selected wavelengths of light, over a common light path, the relative amount of these dominant absorbers in the arterial blood can noninvasively be determined. To ensure the common light path, a sandwich construction light detector is used.

[52] U.S. Cl. .... **128/633; 128/665; 356/41**

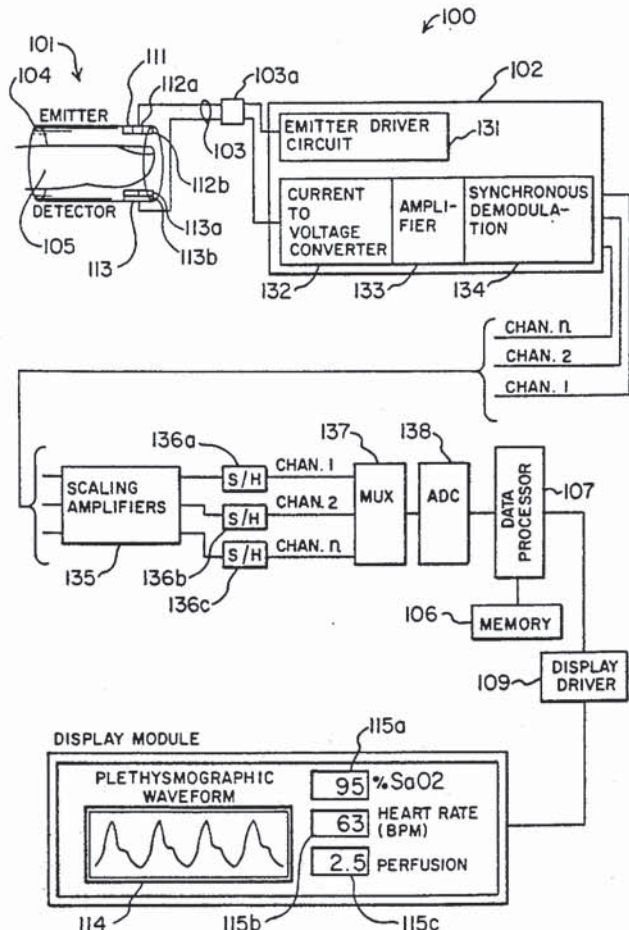
[58] Field of Search ..... 128/633-634, 128/664-667; 356/39-41

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**10 Claims, 4 Drawing Sheets**



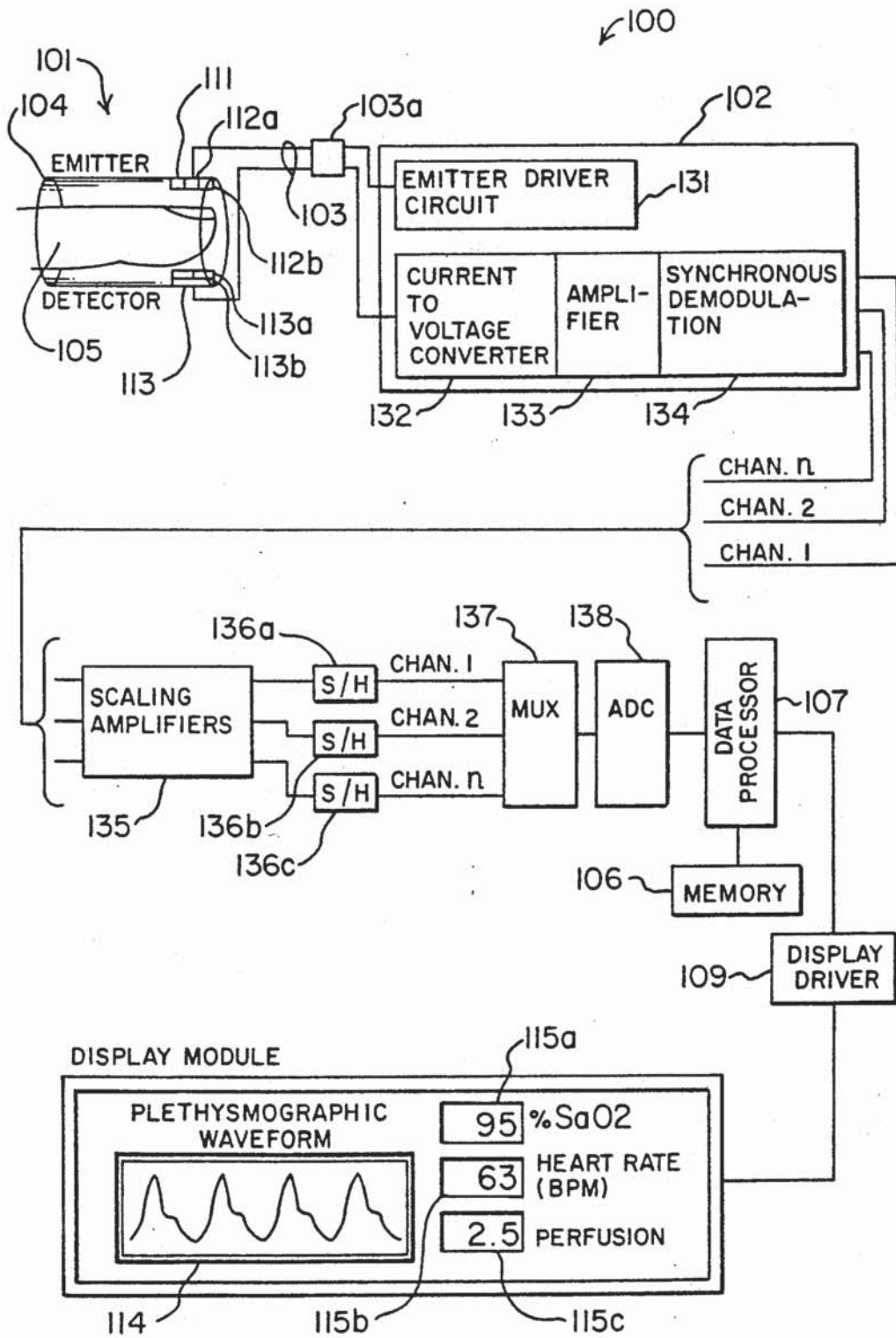


FIG. 1.

FIG. 2.

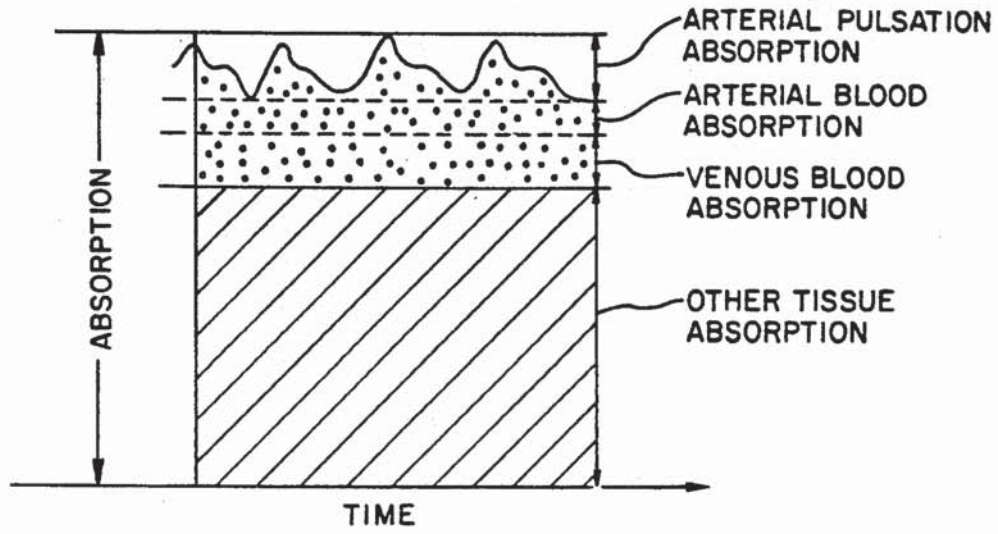
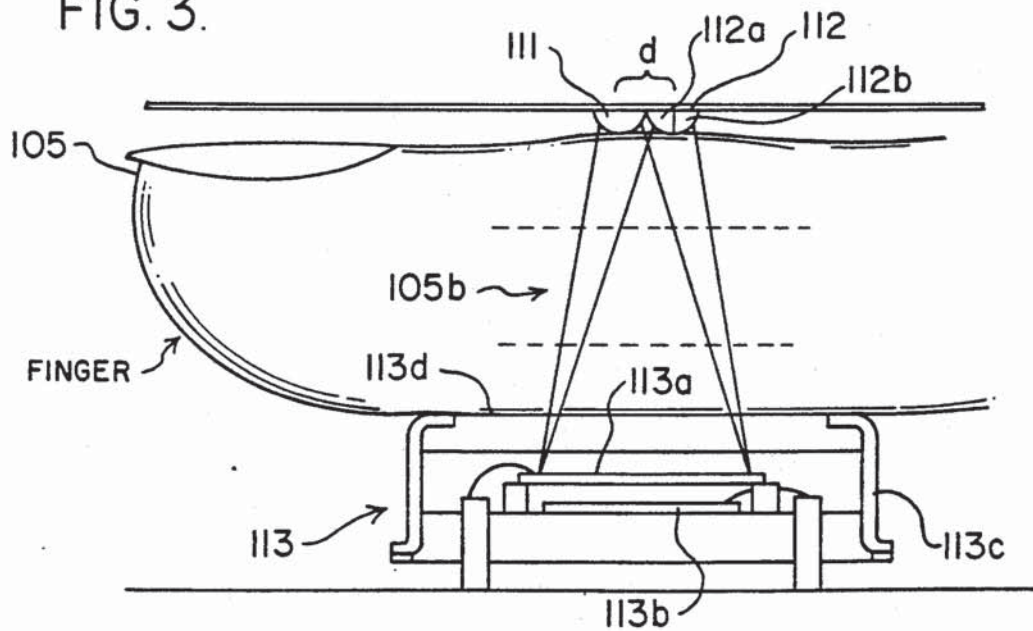


FIG. 3.





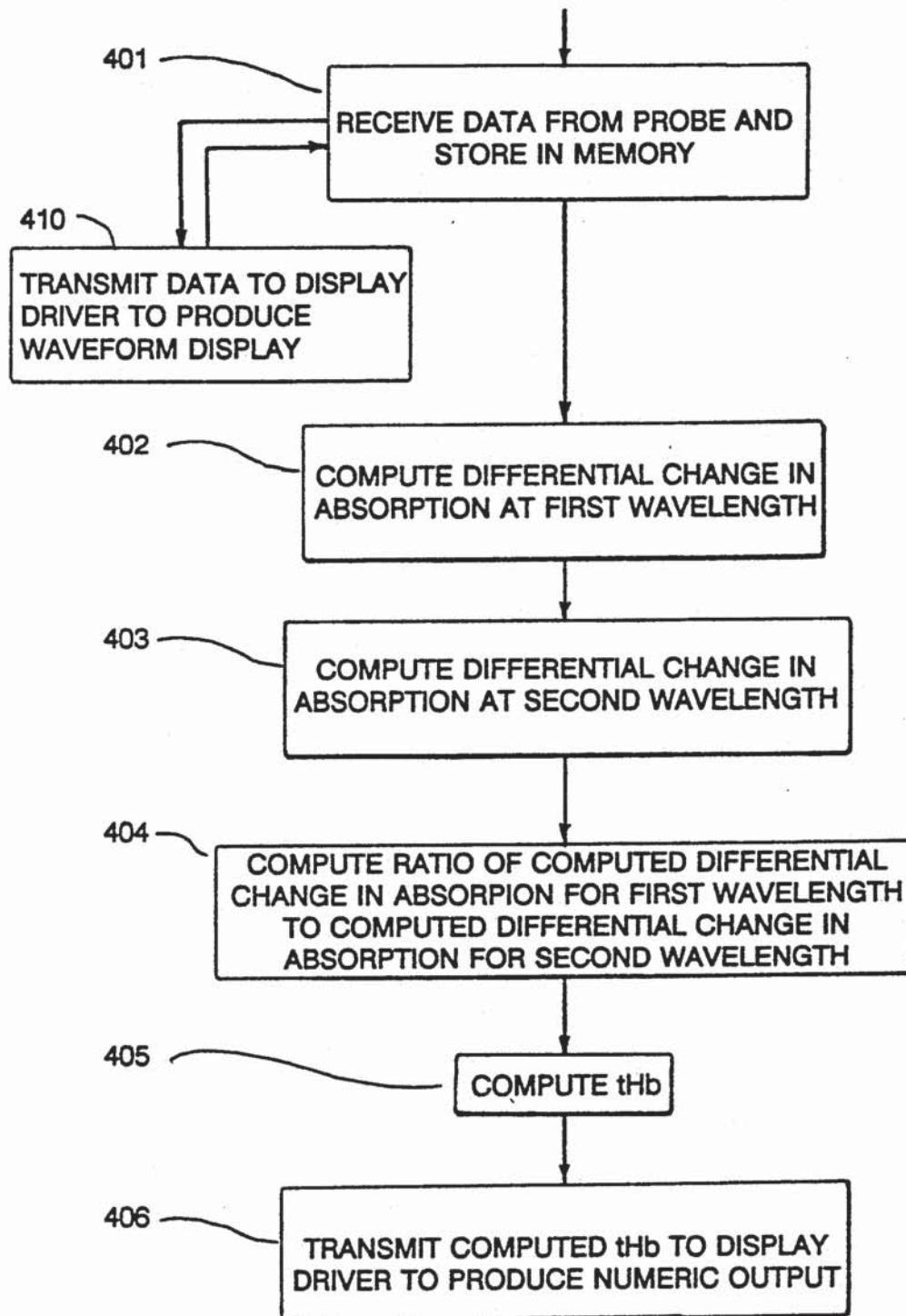


FIGURE 4

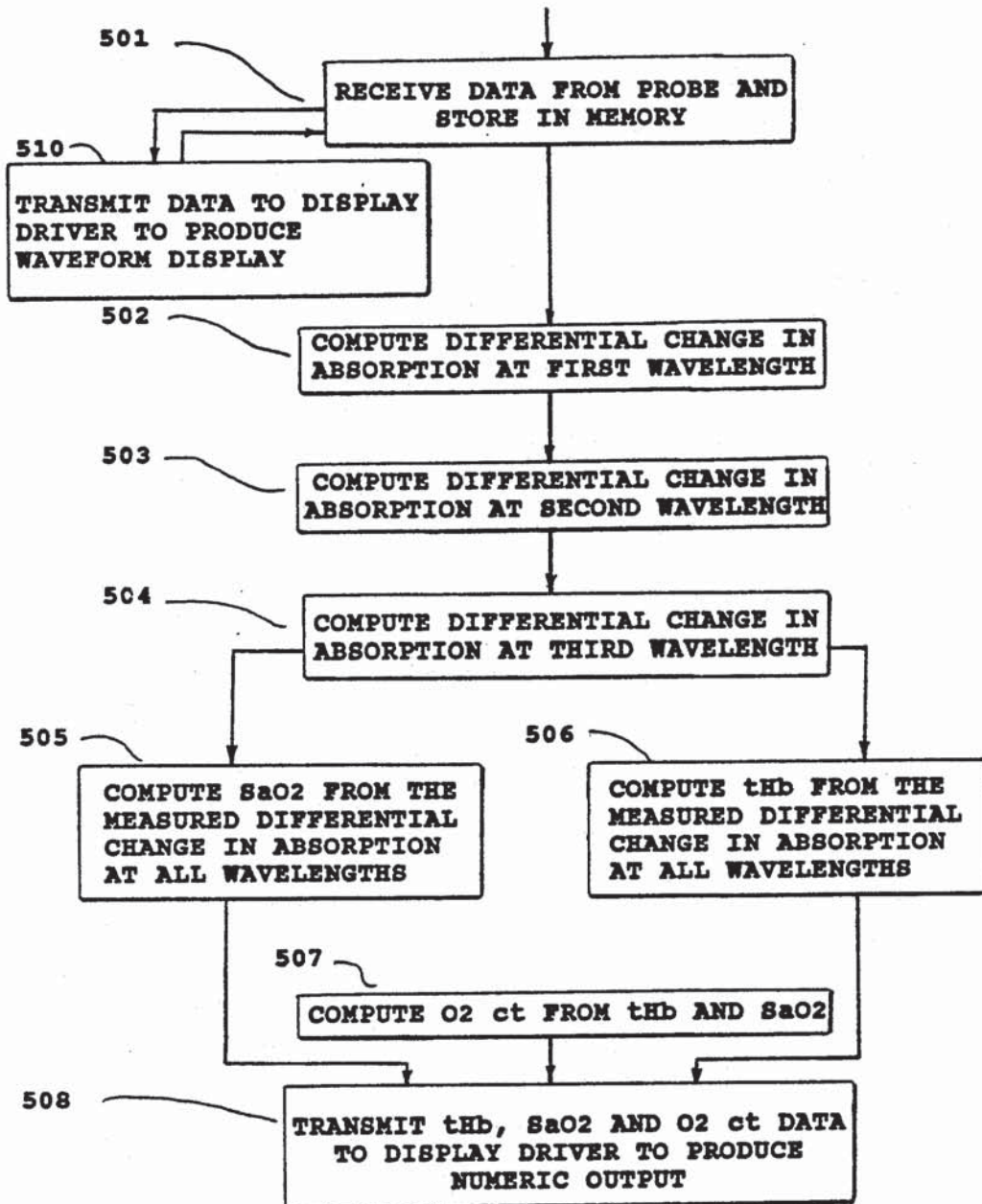


FIGURE 5

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